

Remarks

The Office Action dated August 14, 2009, has been received and carefully reviewed. The preceding amendments and the following remarks form a full and complete response thereto. Claim 1 has been amended. Support for this amendment can be found, inter alia, in paragraph [0050] and figures 3a, 3b and 3c of the present application. No new matter has been added. Claims 7-50, 54, 57, 60, 64, 66-67 and 69 are withdrawn. Claims 1-69 are pending in the application, for which reconsideration is earnestly requested.

Claims 1, 51-53, 55-56, 58-59, 61-63 and 65 are rejected under 35 U.S.C. § 102(b) as being allegedly anticipated by Hayashi et al. (U.S. Patent Application Publication 2002/0041323 A1) (hereinafter "Hayashi"). Applicant respectfully traverses the rejections and submits that Hayashi fails to disclose each and every feature of claims 1, 51-53, 55-56, 58-59, 61-63 and 65.

Claim 1, upon which claims 51-53, 55-56, 58-59, 61-63 and 65 directly or indirectly depend, recites a method for producing a grating image, which at least has one grating field with visually recognizable, optically variable properties, in which grating lines are disposed. The grating lines are produced by means of a writing apparatus. The working apparatus has a working field with a fixed size predetermined by a deflection of a particle beam or a light beam of the writing apparatus. The at least one grating field does not fit completely into the working field. The working field can be moved to different positions of a substrate to be inscribed. The method includes steps of determining at least one uniform grating line that completely lies within one working

field and defining a sequence of working fields with respect to the grating field. In each of the working fields at least one grating line is to be produced continuously without interruption along its entire length by means of deflection of the particle beam or the light beam of the writing apparatus. The method further includes steps of moving to the working fields by relative movement of a carrier, on which is located the substrate, and the writing apparatus; and writing the at least one grating line into the substrate with the writing apparatus within the respective working fields.

Hayashi discloses a method and a device for producing grating structures on a glass substrate by means of a laser beam. According to Hayashi, a mirror device (galvano scanner 13) or a sample holder (stage 15) can be used to shift the laser beam relative to the substrate. According to paragraphs [0030], [0031] and [0035]-[0039] of Hayashi, the laser beam is scanned over the substrate for producing a (complete) diffraction grating by means of the scanner 13 (see in particular paragraphs [0030] and [0035]-[0036]). Thereafter, the sample is shifted by means of the sample holder 15 and another diffraction grating is written at another position of the sample. Alternatively, both the scanner 13 and the sample holder 15 can be used for scanning the laser beam over the sample (See paragraph [0041]).

Hayashi fails to disclose a the at least one grating field does not fit completely into the working field and a working apparatus that has a working field with a fixed size predetermined by a deflection of a particle beam or a light beam of the writing apparatus, i.e., determined by the maximum beam deflection. A fundamental idea of the present invention lies in the segmentation of a grating field into parts, which consist

of one or several grating lines that entirely lie within one working field determined by the writing apparatus and which can thus be written by a continuous deflection of the particle or light beam of the writing apparatus. According to paragraph [0028] of Hayashi, the scanner 13 can direct the laser beam to any point of the substrate without shifting the sample by means of the sample holder. Thus, the working field for Hayashi is the entire glass substrate and the grating field fits completely within the working field. In contrast, the claimed invention provides a solution for situations in which this is not the case, i.e., for situations in which the maximum deflection of the beam defines a working field, which is relevant for the writing process in that the grating field which is to be written does not fit into the working field. Further, the Office Action states that the glass substrate in Figure 1 and the set of lines in figure 4A of Hayashi are working fields. However, these parts of a written grating are not predetermined by a deflection of a particle beam or a light beam of the writing apparatus. Thus, these are not working fields with a fixed size predetermined by a deflection of a particle beam or a light beam of the writing apparatus.

Further, Hayashi fails to disclose determining at least one uniform grating line that completely lies within one working field. The Office Action asserts that Figures 3 and 4A-B disclose determining at least one uniform grating line that completely lies within on working field. However, Hayashi does not address a working field and the selection of distinct grating lines. Rather, in Figure 3 all lines of the diffraction grating are written in a continuous process, wherein the laser beam is scanned over the sample by means of the sample holder. See paragraph [0048] of Hayashi. Further,

Figures 4A-B illustrate the production of gratings of different depths (z-direction) that complement each other such that they form a grating with double depth. This is in contradiction to the fundamental idea of claim 1, which avoids composing the grating lines in smaller parts. This is close to the prior art discussion in paragraph [0006] of the present application, which relates to composing the grating lines of several parts in the x-y direction (i.e. "stitching mode").

Accordingly, for at least the foregoing reasons, Applicant submits that the rejection is improper and requests the rejection of claims 1, 51-53, 55-56, 58-59, 61-63 and 65 be withdrawn.

Claims 2-6 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Hayashi in view of Jackson et al. (U.S. Patent No. 5,335,113) ("Jackson"). Applicant respectfully traverses the rejection and submits that the combination of the cited prior art fails to disclose or suggest each and every feature of claims 3-6.

Claims 2-6 depend directly and indirectly from claim 1. As already discussed, supra, Hayashi fails to disclose each and every feature of claim 1. Jackson fails to remedy the above-identified deficiencies in Hayashi.

Jackson discloses diffraction gratings of reflective or transmissive lines formed by a regular matrix of pixels each containing at least a respective curvilinear portion of one or more of said lines. Jackson fails to disclose a working apparatus that has a working field with a fixed size predetermined by a deflection of a particle beam or a light beam of the writing apparatus or determining at least one uniform grating line that completely lies within one working field which has a size predetermined by the

deflection of a particle or light beam. The combination of Hayashi and Jackson fails to disclose or suggest each and every feature of claim 1. Claims 2-6 depend directly and indirectly from claim 1 and include the features of claim 1 that are not disclosed or suggested by Hayashi and Jackson. Therefore, Hayashi and Jackson fail to disclose or suggest each and every feature of claim 2-6 for at least the foregoing reasons. Accordingly, Applicant submits that the rejection is improper and requests the rejection of claims 2-6 be withdrawn.

Claim 68 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Hayashi in view of Lee (WO 91/03747 A1). Applicant respectfully traverses the rejection and submits that the combination of the cited prior art fails to disclose or suggest each and every feature of claim 68.

Claim 68 is a product-by-process claim that indirectly refers to the steps of claim 1. As already discussed, supra, Hayashi fails to disclose or suggest each and every feature of claim 1. The method disclosed in Hayashi is substantially different from the present invention and would yield a different product. The claimed invention yields a transfer material with continuous, uninterrupted grating lines. Hayashi fails to disclose that all grating lines are produced continuously and, thus, can produce a product with kinks or gaps in the grating lines because the grating lines are not produced continuously and uninterrupted. Lee fails to remedy the above-identified deficiencies of Hayashi.

Lee discloses a method of forming a diffraction grating which provides an optically variable image. Lee fails to disclose producing a grating line determining at

least one uniform grating line that completely lies within one working field which has a size predetermined by the deflection of a particle or light beam. The method disclosed in Lee will produce a product with kinks or gaps in the grating lines. The combination of Hayashi and Lee fails to disclose or suggest transfer material with continuous, uninterrupted grating lines. Accordingly, Applicant submits that the rejection is improper and requests the rejection of claim 68 be withdrawn.

In view of the above, all objections and rejections have been sufficiently addressed. Applicant submits that the application is now in condition for allowance and requests that claims 1-6, 51-53, 55-56, 58-59, 61-63, 65 and 68 be allowed and this application passed to issue.

In the event that this paper is not timely filed, the Applicant respectfully petitions for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account No. 02-2135.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the Applicant's undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

Respectfully submitted,

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